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AUTHOR Martell, Charles
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ABSTRACT

Although the academic research library is service oriented and exists in a diverse, dynamic environment, the jobs within the system tend to be highly structured and mechanistic, more suitable for a production oriented organization. This paper discusses the concept of job dimensions in general and in relation to the academic research library, maladaptation of the library to its environment, and the implementation of job redesign techniques with potential benefits in terms of effectiveness of library operations, the satisfaction of employees, and the success with which it can recognize and adapt to significant shifts in its relevant task environment. A brief description of the process of implementing redesign in a library is presented. Also included are definitions of several terms as used in this report and a bibliography. (MBR)

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THE APPLICATION OF JOB REDESIGN CONCEPTS TO THE MANAGEMENT OF ACADEMIC RESEARCH LIBRARIES

by
Charles Martell

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John Skår

CONTENTS

	Page
Introduction	1
Academic research libraries: the American model	2
Jobs without meaning	3
Maladaptation	5
Implementation of job redesign techniques	8
Conclusion	13
Definition of terms	14
Bibliography	15

INTRODUCTION

How can organizations be changed? This question has received increasing attention within the past decade. Concern with the "how" question has furthered the growth of areas such as organizational design, organizational development (OD) and the redesign of jobs. Concomitant developments have included: (1) the application of "systems thinking" to organizational analysis; (2) the examination of the nature of the interactive relationship between an organization and its environment; (3) a greater awareness of the significance of process, e.g., the communication system, in contributing to organizational effectiveness; and (4) a renewed interest in the meaning of work.

Organizational change is usually an uneven, difficult process. Complex interdependencies, (i.e. human, structural, environmental and technological), create unexpected challenges. To appreciate fully the complexities of organizational change it is first necessary to examine two other questions: (1) why should organizations change; and (2) what should organizations change? Indeed, it is the "consensus of rational opinion" about particular aspects of the "why" and "what" issues that has prompted the increased interest in organizational change and the problems of implementation.

The focal institution in this paper is the academic research library. The purpose is to highlight problem areas, to suggest new designs, and to explore aspects of the implementation process, (i.e. how to incorporate job redesign techniques into the library).

ACADEMIC RESEARCH LIBRARIES: THE AMERICAN MODEL

The academic research library can be broadly defined according to four criteria:

1. Located within a university.
2. University offers a full range of advanced degree programs, e.g. Ph.D.
3. Research function is a major, perhaps prime university activity.
4. Library holdings, - typically in excess of one million volumes -, are sufficient to support mission of the university.

The University of California, Berkeley, for example, offers about 90 advanced degree programs. The library system, which includes a graduate research library, an undergraduate library, a law library and twenty-one branch libraries, has holdings of slightly over four million volumes.

The university as one of the axial structures of the Knowledge Society is both a creator and disseminator of knowledge. The library shares this mission. Like many service institutions, however, the library has operated on a far more restricted scale. That is, the library has acted solely as a storehouse of knowledge. Dissemination has been generally limited - You must go to the library. The mission of "creator" has not been recognized except in the sense that the library will offer support to those others who are the creators.

Recent developments 1) in the library profession, e.g. an increased knowledge of user needs, 2) in the information/communication sciences, 3) in technology and 4) in our society offer the library the opportunity to assume a new and more significant role as an active disseminator and as a creator. The emergence of librarianship as a profession in the fullest sense can be facilitated by new organizational designs to replace the traditional bureaucratic model and by new job designs to remove the restrictions on personal growth and development inherent in this model.

JOBS WITHOUT MEANING

Broad advances in industrialization have resulted, in part, from the application of the principles of division of labor and specialization to work tasks. These principles have successfully interfaced with the mechanistic view of man. An unfortunate consequence of the division of labor has frequently been the structuring of jobs without meaning. Studies at the workplace have centered not on the job itself but on the specific task or tasks to be accomplished. Advances such as scientific management have fractionated tasks even further. Indeed, we have passed from the division of labor into the "division of time itself."[1] This trend still continues. Numerous studies document the growing alienation of the American worker, blue collar, white collar and professional.

As we have moved from a production-centered economy to a consumer-centered economy, there has been a growing differentiation of markets. Uncertainty and turbulence have created new demands. This has sharpened the dichotomy between the mechanistic view of man and other more recent theories based on psychological and sociological research. Organizations which have engaged in extensive division of labor and specialization in order to improve predictability and performance reliability are now handicapped. They have stunted the "systems freedom and its capacity to deal with emergent situations effectively."[2] Moreover, Shepard has found that "degrees of control and freedom, meaning, and autonomy-responsibility are negatively related to the degree of functional specialization."[3]

Current interest in job design centers on the job itself. Emphasis is attached to the meaning of the job. There is strong evidence that meaning is significantly related to job content. Analysis of jobs has led to the construct of vertical and horizontal job dimensions. Horizontal factors include type of job and degree of variety. Job enlargement and job rotation have been two responses for improving the horizontal components of work

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[1] Daniel Bell, "Three technologies: size, measurement, hierarchy," in Design of jobs, ed. Louis E. Davis and James C. Taylor (Middlesex, England: Penguin Books, 1972), p. 33.

[2] Robert Boguslaw, "Operating units," in Design of jobs, p.42

[3] Jon M. Shepard, "Functional specialization and work attitudes," Industrial Relations (February 1969), 190.

activity. Studies have indicated that horizontal factors have little impact on the intrinsic value of a job or its meaning. Job enrichment affects the vertical dimension. The worker is given a greater role in the making of decisions which affect his job. Scheduling, inventory control and quality control are frequently elements of the job enrichment package. The employee gains a new measure of control. Higher psychological needs may be tapped - self-esteem and self-actualization. The most successful job designs utilize both horizontal and vertical job dimensions.

In the literature there is a sense of the direction toward which job design should be heading. To be meaningful a job should have "whole" properties. Turner and Lawrence (1965) presented four perceived task attributes which correlated strongly with performance among certain types of workers. These attributes are autonomy, variety, task orientation and feedback. Hackman and Lawler (1971) in follow-up research added two additional attributes, i.e. friendship opportunities and interaction with others. Each of the preceding task attributes are essential components of the contemporary approach to job design. Work systems design should concern itself with whole human beings and with "the social system within which the work systems are embedded."[4]

The Special Task Force which authored Work in America noted a glaring discrepancy between actual organizational practice and the goal of optimum job design. "It is imperative, then, that employers be made aware of the fact that thorough efforts to redesign work - not simply 'job enrichment' or 'job rotation' - have resulted in increases in productivity from 5 to 40%. In no instance of which we have evidence has a major effort to increase employee participation resulted in a long-term decline in productivity."[5]

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[4]Louis E. Davis, "Introduction," in Design of jobs, p. 17.

[5]Work in America, Report of a Special Task Force to the Secretary of Health, Education, and Welfare (Cambridge, Mass.: MIT Press, 1973), p. 112.

MALADAPTATION

Effective environmental interaction and adaptation are not new problems for libraries. Recent research in organization theory, however, has created new insights into the processes of interaction and adaptation. Organization and environment: managing differentiation and integration by Lawrence and Lorsch is one noteworthy example of contemporary research on this subject. Lawrence and Lorsch's study examines "the relationship between the structural characteristics of complex organizations and the environmental conditions these organizations face."[6]

One question which should be answered is whether or not the library exists in a stable or dynamic environment. A dynamic environment is characterized by rapidly changing technological and market conditions, a continually emerging body of scientific knowledge, and uncertainty. Burns and Stalker (1961) studied 20 industrial firms. Organizations existing in a stable environment were classified as mechanistic. Those in a dynamic environment were classified as organic. The research of Lawrence and Lorsch likewise suggests "that effective organizational units operating in stable parts of the environment are more highly structured, while those in more dynamic parts of the environment are less formal."[7]

Analysis of the library's environment and organization structure should confirm that academic research libraries exist in a diverse dynamic environment, yet tend to be highly structured and mechanistic. This structure is more suitable for a production-oriented organization than for a service-oriented one. Data for this analysis are available in the form of organization charts, studies on the organizational patterns of academic research libraries, market analyses of the information industry, documentation concerning the information explosion (e.g. time-series on the number of periodicals published each year) and research dealing with the changing structure of higher education. By compiling data from these varied sources a general descriptive analysis of the library's environment and structure can be constructed.

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[6]Paul R. Lawrence and Jay W. Lorsch. Organization and environment: managing differentiation and integration (Homewood, Illinois: Richard D. Irwin, Inc., 1969), p.v.

[7]Ibid., p. 189.

There is evidence that academic research libraries are inadequately structured to meet the needs of a post-industrial society.[8] Specific features of this newly emerging society are: (1) the change from a production-centered economy to a consumer-oriented economy; (2) an increasingly uncertain and turbulent environment; (3) the dramatic impact of modern technology, (e.g. computer technology), on organizations; and (4) the recognition of "information" as an important factor of production - the term "knowledge worker" is one outgrowth of this recognition. These factors seem to indicate the need for a shift in the locus of the library's technical core away from the maintenance functions, (i.e. cataloging and acquisitions), toward service functions (i.e. reference and other areas of information access) - boundary spanning activities.

Academic librarianship has not effectively responded to this apparent challenge for many reasons. One of the prime factors has been the failure of the library as an institution to establish viable interactive mechanisms with its external environment. Cleverdon (1972), Fussler (1973), and Mathematica Inc. (1967) have commented on the inadequate feedback mechanisms of libraries. Of utmost interest is the suggestion that library operating data are related primarily to inputs rather than outputs. Fuchs (1968) in his study of production in the service sector of the economy specifically cites "educational services" as having inadequate output measures. Many institutions face similar difficulties in responding to and interacting with their respective environments. Over the past decade the study of organizational environments has received considerable attention from organizational theorists.

Examination of the behavior of academic research libraries appears to confirm the existence of production-oriented rather than service-oriented institutions. Production-oriented organizations typically buffer their technical cores from the external environment in order to protect the

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[8] Research on the structure of organizations has documented the difficulties which many traditionally structured, hierarchical organizations have in adapting to uncertainty and the problems of differentiation both of which are attendent features of the post-industrial society. Organization charts reveal that academic research libraries are, with few exceptions, traditionally structured.

efficiency of their operations. If a need for academic research libraries to become service-oriented is indicated, a new ethos of efficiency will be required.

Routines, rules, and control are generally stressed in production-oriented organizations. Empirical research is available which indicates that such organizations tend to be unresponsive to changes in their external environments. This lack of responsiveness can be partially attributed to the inflexibility of the typical organization structure (e.g. work roles are defined exceedingly narrowly and the employee has very little discretionary power). These traditional forms of organizing treat the employee in a mechanistic fashion. The negative aspects of narrowly conceived work roles on the individual and his organizational performance have been well-documented by sociologists, behavioral scientists and industrial psychologists.

Dissatisfaction is frequently associated with production-centered organizations. Recent studies of job satisfaction in academic libraries suggest the possible existence of serious problems. Vaughn and Dunn (1974) administered the JDI (Job Description Index) to 265 full-time employees in six university libraries. Job satisfaction within each of the six libraries totalled 33.4%, 47.84%, 52.92%, 53.70%, 54.60% and 62.10%.[9] These levels of job satisfaction are especially low when contrasted with the results of a U.S. Department of Labor Manpower Report to the President 1968 which showed overall job satisfaction of professionals and technicians at 83%. In another study by Sheppard and Herrick (1972) only 9% of all professional, technical and managerial workers expressed negative attitudes toward work.

Another indirect indicator of satisfaction is derived from the question: "Would you choose similar work again?" Presthus reports that 33% of library professionals would choose the same work again. On the other hand 93% of urban university professors, 86% of chemists, 83% of lawyers, 43% of white-collar workers, and 24% of blue-collar workers would choose similar work again. If this evidence is reliable, then one must conclude that librarians are a relatively dissatisfied work force.

[9] The percentages are derived by computing the proportion of employees scoring above the composite JDI (component) means. The composite JDI (component) mean is a simple arithmetical average of the 265 employees' scores.

IMPLEMENTATION OF JOB REDESIGN TECHNIQUES

Recent advances in the area of job design lead one to conclude that the application of redesign techniques to the management of academic research libraries may have important benefits for the library in terms of the effectiveness of its operations, the satisfaction of its employees, and the success with which it can recognize and adapt to significant shifts in its relevant task environment. The process of synthesizing the principles and techniques of job redesign to academic research libraries is complicated by the absence of past experience. The development of a library-specific knowledge base is, therefore, an essential prelude to an actual application of these techniques.[10]

Another equally important task will be to instill in library administrators an appreciation for the complexity, impact, and experimental nature of contemporary job redesign efforts. As the Special Task Force states in its report Work in America, "Research will not lead to the discovery of some formula that simultaneously maximizes productivity and satisfaction. Instead, as we have said, the redesign of each job constitutes a unique experiment - one that can be facilitated through knowledge of certain principles, techniques and past experiences - but one that essentially requires the cooperation of workers, managers and unions in a frequently complex trial and error process."[11]

Researchers and other potential change agents should also be aware of some of the problems associated with any test or implementation of job redesign techniques:

1. The task of finding a favorable organizational climate might be difficult.

2. The overwhelming organizational impact connected with the establishment and maintenance of an experimental work group based on job redesign principles would bar easy acceptance.

3. The extended time-frame for evaluation - two to five years - would be a burden on even the most enthusiastic library system.

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[10] Workplace study in librarianship has advanced to the point of task analysis. See Dale Brunelle Canelas, "Task analysis of library jobs in the State of Illinois: a working paper on the relevance of the study to academic libraries," Illinois Library Association, Ad Hoc Committee on Manpower Training and Utilization, 16 September 1971.

[11] Work in America, p. 117

4. The likelihood that "the redesign of each job constitutes a unique experiment" suggests that the validity of job redesign will not easily be supported.

Success can hinge on the selection of an appropriate problem or set of problems which can benefit from the application of job redesign. The problem area within academic research libraries which can profit most from such an application is boundary spanning activity, i.e. activity on the boundary of the library which interfaces and interacts directly with the library's environment. Initially, the type of boundary spanning activity could be limited primarily to the service component or system outputs. Input functions could subsequently be incorporated into the design. Such design changes would clearly have systemwide implications. One outcome of successful redesigning of boundary spanning activity would be improvement of the library's feedback mechanisms: environmental monitoring is essential.

The purpose of this section is to provide for the reader who asks "How might I go about doing this in my library?" a brief description of the process by which one might implement job redesign concepts. Two facts should be kept in mind: (1) this is a synthesis of concepts and techniques developed in areas outside of librarianship; and (2) the synthesis is untested. The foundation on which the synthesis is built comprises the literature - theoretical and empirical - of several disciplines, interviews with researchers and practitioners, personal observation and library personnel office documents (e.g. job descriptions). The synthesis itself is grounded on the judgment of the author.

The first step in the implementation process is to establish the general organizational framework for redesign. The formation of a single experimental work group is doubtless the most efficacious way to begin. The work group would be a prototype unit for a library structured not by function but according to "market-centering" concepts. This entails organizing line units around the markets to be served (e.g. around academic disciplines). The details of this form of structuring and support for it are available in the literature on organization design. Library literature will provide the structural forms currently in use within academic librarianship. That all of these forms have specific dysfunctional attributes which hinder and may even preclude effective interaction between the library and its environment is strongly indicated. As a <u>market-centered unit</u> the prototype work group may well overcome objections inherent in other commonly used forms.

This type of work unit additionally offers fertile ground for the implementation of a full range of job redesign techniques.

The work group concept serves a dual purposes: (1) it is a hypothetical model for restructuring the library's boundary functions; and (2) it is a vehicle for describing how the redesign of jobs might be accomplished. The work group simultaneously connects the organization and its environment (E → O), brings individual members of the work group closer to the organization's (i.e. the library's) environment and to the overall purposes and goals of the library as an organization (E → I- → O).

The second step in the implementation process involves the establishment of the general operational guidelines for the work group preparatory to its actual formation. These include the basic task objectives, the boundary of the work group, the content of the work, the methods to be used, the resources which will be needed (e.g. staff support), as well as the kinds of action research necessary to provide the work group with feedback information. Textbooks on library management typically list the general task objectives of the library. A tentative identification of the boundary follows from (1) the nature of the task environment, (2) the task objectives, and (3) the expected interrelationships between the work group and other library units. Information on the content of the work, the methods to be used and the resources which will be needed can be derived from various sources. The Association of Research Libraries (ARL) Systems and Procedures Exchange Center recently issued a complete report on the subject of job descriptions in academic libraries. Actual job descriptions from a number of academic libraries are included in this ARL report. A major goal in the implementation process should be the creation of an organizational climate capable of facilitating the development of a mature work group able to recognize and adapt to relevant shifts in its task environment. Since the intent is to establish a work group which is self-diagnosing, self-evaluating and self-regulating the level of design specificity should be held to a minimum in the preparatory planning phases.[12] This runs directly counter to traditional job design which attempts to minimize the degree of unpredictability by means of a detailed comprehensive

[12]This approach is consonant with general systems theory in its treatment of organic problems. It should be noted that general systems theory forms the philosophic underpinning for many job redesign theorists. See John W. Sutherland, A general systems philosophy for the social and behavioral sciences (New York: George Braziller, 1973).

plan. Once formed the prototype work group would be responsible for ensuring that its contents, methods and relationships are sufficiently detailed and lucid to permit the attainment of its task objectives.

Proponents of job redesign utilize research in order to facilitate work development. In action research "behavioral scientists are now seeking to avoid the production of elegant but sterile studies by involving their human subjects more in the design, monitoring and execution of the research."[13] The need for the initiation of performance measures and other monitoring devices is abundantly clear. Library literature furnishes a relevant source for the suggested measures.

The third step in the implementation process involves the actual formation of the work group. It is here that the experience of practitioners is most helpful. A description of the conditions which would contribute to or confound successful implementation of the work group concept could be undertaken by utilizing the findings and experiences of these practitioners. Difficulties involved in integrating such a work group with the objectives, policy and style of management should also be examined. Certain measurements (e.g. the Likert scale) might even be suggested which would indicate whether or not job redesigning should even be attempted. Consideration should also be given to the process by which members are selected for such work groups. Tests which evaluate such attributes as initiative, tolerance for ambiguity, self-esteem and sense of responsibility could be used in the screening process.

There are several ways for evaluating the success of the work group. The Job Description Index (JDI) is a highly respected tool for measuring job satisfaction. This instrument could be administered to the library staff before redesign efforts are initiated. A low level of job satisfaction could conceivably reinforce the need for job redesign. If the JDI is administered again after a suitable interval (e.g. one year), evidence can be obtained as to improvements of job satisfaction within the work group and changes in satisfaction among a control group or groups.

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13 Chris Argyris, "A few words in advance," in The failure of success, ed. Alfred J. Marrow (New York: AMACOM, 1972), p.6.

Productivity measures (e.g. circulation, document exposure, or client satisfaction) could be used before, during, and after both as an indication of the effect of job redesign on unit productivity and as a feedback mechanism for self-regulating activity. Some types of productivity measures would facilitate the service orientation of the work group more than others.

CONCLUSION

The final part of the implementation stage relates to the process of diffusion (i.e. expanding the number of work groups). The decision to implement an experimental work group implies a need to examine tasks and work roles as well as impact upon other units. The decision to expand further requires examination of the entire reward structure, career development, managerial roles, organization structure and the nature of the library's production technology. Obviously a new implementation cycle must be initiated. The opportunities match the challenge.

DEFINITION OF TERMS

Boundary
Domain
Technical core
Environment
Task environment

An organization's environment may be determined by first identifying the organization's boundary (i.e. "the points at which the organization is dependent on inputs from the environment.").[1] Within the boundary lies the organization's domain. The technical core is "a suborganization whose 'problems' are focused around effective performance of the technical function."[2] Within the library technical service units perform this function. External to the boundary is the organization's environment. The environment consists of two parts. The first part is the organization's task environment. This is immediately "relevant or potentially relevant to goal setting and goal attainment."[3] Clients, suppliers of labor, capital and materials, competitors for markets and resources, and regulatory agencies are included in the task environment. Beyond the task environment lies "everything else."[4] This category includes the state of technology, the economy and the occupational system relative to a society's social structure, the distribution of power within a polity and the values inherent in a culture.[5]

Sources: (1) James D. Thompson, Organizations in action (New York: McGraw-Hill Book Co., 1967), p. 27. (2) William R. Dill, "Environment as an influence on managerial autonomy," Administrative Science Quarterly (March 1958), 409-443. (3) Thompson, p. 10. (4) Thompson, p. 27. (5) Daniel Bell, The coming of post-industrial society (New York: Basic Books, 1973).

Job design

Specification of the contents, methods and relationships of jobs in order to satisfy technological and organizational requirements as well as the social and personal requirements of the job holder. Traditional job design techniques and concepts tend to ignore the social and personal requirements of the job holder.

Source: L.E. Davis, "The design of jobs," Industrial relations 6 (1966), p. 21.

Organization
Organization theory

An organization may be defined as "a goal-oriented social system in its environment."[1] Organization theory is the "study of the structure, functioning and performance of organizations and the behaviour of groups and individuals within them."[2]

Sources: (1) D.S. Pugh, "Colonel Urwick and 'Organization'," Omega 1 (1973), p. 350. (2) D.S. Pugh, ed. Organization theory (London: Penguin Books, 1973), p.9.

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